



PNDF-01194
Amendment dated 01/23/2004

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Amendments to the Specification:

Please replace the paragraphs beginning at page 1, line 8 and continuation to page 10, line 28, with the following rewritten paragraphs:

In conventional communication devices, ~~there is the one in which~~ a plurality of functions ~~involved~~ included in the communication device can be stored in an arbitrary combination. In such communication ~~device as described above~~ devices, some functions, which have been previously set and enrolled by a user are effected by such operations as depression of setting keys, and the ~~following~~ subsequent depression of keys on ten-key pads as to which some functions have been previously enrolled.

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Furthermore, an example of a so-called one-touch operation, wherein a plurality of functions has been stored previously in one of the keys, and the plurality of functions stored is ~~conducted~~ executed by pushing down the key, unlike the above-described case wherein a plurality of keys are pushed down to execute some functions, is described in Japanese Patent Laid-Open No. 9-18559.

In conventional communication devices, however, ~~such operation that~~ a user must ~~once~~ first enter such operations in an enrolled mode, and select functions to be enrolled in the case where the user wishes to enroll a plurality of functions. Accordingly, the user goes to some trouble for entering into such enrolled mode, so that it is inconvenient for the user.

Furthermore, in conventional communication devices, a series of operational procedures cannot be enrolled, but merely functions themselves can be enrolled. In these circumstances, operational procedures of functions, which are used frequently by a user, cannot be enrolled. In this respect, a user must input each of the operational procedures separately, so that the user cannot obtain acceptable results as to operability.

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Moreover, since a conventional device has not been provided with a function for confirming a desired function to be applied by a user before execution thereof, there is a fear of conducting erroneously a function that is not intended by the user.

SUMMARY OF THE INVENTION

Accordingly, the present invention has been made in view of the problems involved in conventional communication devices as mentioned above. An object of the present invention is to provide a communication device by which user's operability can be improved, and erroneous operation can be prevented from occurrences occurring.

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In order to achieve the above-described object, a communication device according to the present invention comprises a key-input section in which key operations are ~~implemented~~ input by a user; a key-operation storing section for storing key-input information input in the key-input section; a display section for displaying the key-input information, which has been stored in the key-operation storing section; a non-volatile memory section for storing key-input information ~~selected by the user with the use of the key-input section from the key-input information displayed on the display section~~ as a series of or combination of key-input information; and a control section for executing sequentially the key-input information, which has been stored in the non-volatile memory section as the series of or combination of key-input information.

According to the above-described communication device of the present invention, key-input information, which has been input by a user through user's key operation, may be combined with each other, and the key-input information thus combined can be stored. Hence, an operational procedure for functions, which have been frequently used by the user, may be enrolled, whereby it can be easily executed, so that user's operability is improved.

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Furthermore, the above-described display section may ~~have such constitution~~ be so constituted that it displays the key-input information in ~~accordance with such an~~ the same order that the key-input information was stored in the key-operation storing section.

Moreover, the above-described key-input information in the form of the series ~~of or~~ combination may be stored in the above-described non-volatile memory section ~~in a condition in which with~~ a functional name that has been assigned to the key-input information.

Further, the above-described key-input information in the form of the series of ~~combination operations~~ may be allocated to a softkey disposed in the key-input section to be enrolled.

Still further, the above-described control section may ~~have such constitution~~ be so constituted that it makes a display of an indication for confirming a) whether or not execution display of the key-input information ~~is started or not has been made on~~ the display section before executing sequentially the key-input information in the form of the series ~~of or~~ combination of functions, and ~~the b) whether or not~~ execution of the key-input information ~~is~~ has been started in the case where there was such an input by a user through the key-input section to the effect that the execution of the key-input information should be started ~~by a user through the key-input section~~.

As a result, the user can decide whether it should be executed or not after confirming contents of such execution by himself (or herself). Therefore, ~~it can be prevented from erroneous execution of a function, which has not been intended to execute by the user~~ can be prevented.

Yet further, a capability for transmitting and receiving e-mail may be ~~involved~~ included in the above-described communication device, and the key-input information in the form of the series ~~of or~~ combination of functions relates to an operational procedure for transmission and/or reception of e-mail.

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~~Besides~~In addition, a capability for linking to the Internet may be ~~involved~~
included in the above-described communication device, and the key-input information
in the form of the series ~~of or~~ combination of functions relates to an operational
procedure for accessing ~~to a~~ specific site on the Internet.

As described above, an operational procedure for transmission and/or
reception of e-mail, or an operational procedure for accessing ~~to a~~ specific site on the
Internet, may be ~~have been previously enrolled, whereby it can be prevented from~~
preventing erroneous input of an e-mail address by a user. Accordingly, it becomes
possible to prevent erroneous transmission of an e-mail to a different address, or
erroneous accessing to Internet, which has not been intended by a user.

BRIEF DESCRIPTION OF THE DRAWINGS

The present invention will be explained in more detail in conjunction with
appended drawings, wherein:

FIG. 1 is a block diagram illustrating an outlined constitution of an
embodiment of a communication device according to the present invention;

FIG. 2 is a flowchart for explaining a series of operations in the
communication device shown in FIG. 1;

FIG. 3 is a flowchart for explaining another series of operations in the
communication device shown in FIG. 1;

FIG. 4 is a flowchart for explaining a further series of operations in the
communication device shown in FIG. 1;

FIG. 5 is a flowchart for explaining a still further series of operations in the
communication device shown in FIG. 1; and

FIG. 6 is a flowchart for explaining a yet further series of operations in the
communication device shown in FIG. 1.

DESCRIPTION OF THE PREFERRED EMBODIMENT

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In the following, an embodiment of the present invention will be described in detail by referring to the accompanying drawings wherein FIG. 1 is a block diagram illustrating an embodiment of a communication device according to the present invention.

Referring to FIG. 1, a communication device of the present embodiment comprises a key-input section 1 for setting key operations by a user; a device control section 2 for analyzing contents, which have been input through keys to store setting results relating thereto or to control an output device based thereon; an output device 3 for displaying data, which have been ~~set out~~ entered, and ~~sounding emitting sounds~~ for certain purposes; a key-operation storing section 4a for storing key-operations, which were ~~set out~~ entered by a user; a non-volatile memory section 4b for storing data, which have been deposited in the key-operation storing section 4a, into a non-volatile area; and a storage device section 4 ~~involving including~~ a functional name storage section 4c for enrolling functional names ~~of for~~ key-input information.

The key-input section 1 ~~involves including~~ a soft key to which a plurality of functions may be allocated other than keys on the so-called ~~ten keys~~ ten-key pad and function keys. Key data presented by a user pushing down a key on a keypad ~~by a user~~ is transmitted to the device control section 2. The device control section 2 analyzes the key data from the key-input section 1 to execute storage and erasure of key-input information. The device control section 2 transmits also display data to be displayed on an LCD (liquid crystal display unit) of the output device 3 in conformity with an operation ~~conducted~~ executed.

The output device 3 is composed of an LCD, a speaker, a receiver and the like, and the output device 3 displays data assigned by the device control section 2 by means of images and sounds.

The key-operation storing section 4a of the storage device section 4 is allowed to analyze key-data, i.e., key-input information input from the key-input section 1 by means of the device control section 2, and stores the data analyzed. Furthermore, the

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key-operation storing section is used also ~~in the case when key-input information;~~
~~which is stored in the non-volatile memory section 4b in the event where, key-input~~
~~information is compiled, is developed.~~ The non-volatile memory section 4b stores
data transmitted from the key-operation storing section 4a, and the functional name
storage section 4c is used in the case when storage names of key-input information
and are fixed to softkeys are fixed.

The functional name storage section 4c stores a functional name of a softkey
executing key-input information relating fixed thereto ~~in the case when the key-input~~
~~information is fixed.~~

Operations of the above-described communication device will be described in
more detail hereinafter.

Referring again to FIG. 1, key-data input in the key-input section 1 is analyzed
in the device control section 2, and the results analyzed are displayed on an LCD of
the output device 3. As a result When the results of analysis of the key-data in the
device control section 2, ~~when the results~~ require an enrollment of key-input
information, histories of key-input information, ~~which have been heretofore stored in~~
the key-operation storing section 4a ~~as a result of inputting such information is~~ are
displayed on the LCD of the output device 3 in ~~older~~ sequence. When certain
key-input information is required to be stored, it is fixed by a user's key operation.
Storage of ~~certain other~~ key-input information is not required; such key-input
information is erased by a predetermined key-operation.

As a result of analysis of key-data, ~~which was input by the key-input section 1,~~
~~in the device control section 2,~~ when the key-input information is required to be fixed,
such key-input information is stored in the non-volatile memory section. Then, the
following key-input information, which has been stored in the key-operation storing
section 4a, is displayed on the LCD of the output device 3, and such key-input
information is stored in the non-volatile memory section 4b ~~in accordance with the~~
same manner as that described above. In this ~~occasion~~ situation, key-input

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information ~~is stored in the non-volatile memory section 4b~~ is in the form of a series of ~~combination combined key-inputs~~. ~~As a result of repeating such operation, when~~
When all the key-input information, ~~which has been stored in the key-operation~~
~~storing section 4a, is stored in the non-volatile memory section 4b, completion of~~
enrollment is displayed on the LCD of the output device 3, ~~and further, such message~~
to the effect that a functional name of a softkey may be input ~~is displayed on the LCD~~
~~of the output device 3.~~

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As a result of analysis of key-data in the device control section 2, when the
obtained result requests deletion of key-input information, the corresponding
key-input information is deleted, and the following key-input information, which has
been stored in the key-operation storing section 4a, is displayed on the LCD of the
output device 3. Such operations are repeated, and when no key-input information
exists in the key-operation storing section 4a, ~~such a~~ message to the effect that a
functional name of a softkey may be input is displayed on the LCD of the output
device 3. In the case where no key-input information ~~exists stored in the non-volatile~~
memory section 4b ~~exists~~, a message to the effect that ~~such a~~ decision should be made
whether key-input information, which has been stored in the key-operation storing
section 4a, is to be erased or not ~~should be made~~ is output on the LCD of the output
device 3.

~~As a result of analyzing key-data, which was input by the key-input section 1,~~
~~in the device control section 2, when~~ When an analysis of the key-data shows that it is
in process of inputting a functional name of a softkey, this situation is maintained in
the functional name storage section 4c. On one hand, as a result of analysis of input
data in the device control section 2, when the result indicates fixation of a functional
name of the softkey, the data stored in the functional name storage section 4c is linked
with the key-input information, ~~which has been stored in the non-volatile memory~~
section 4b, and the resulting data is stored in the functional name storage section 4c.
In the case when it is requested to fix a functional name of a softkey in a situation

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where no functional name of the softkey has been input, default data is stored in the functional name storage section 4c and linked with key-input information, ~~which has been stored in the non-volatile memory section 4b to store the resulting data in the functional name storage section 4c.~~ After storage of the data is stored, ~~such a~~ message to the effect that key-input information was ~~set out~~ linked to a functional name is displayed on the LCD of the output device 3.

On the other hand, ~~as a result of analyzing key-data, which was input, in the device control section 2, when an analysis of key-data shows a request it is requested~~ to delete key-input information, all the key-input information residing in the key-operation storing section 4a, the non-volatile memory section 4b, and the functional name storage section 4c is erased. After completing erasure, a fact of erasure is displayed on the LCD of the output device 3.

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~~After~~ When analysis of key-data, ~~which was input by the key-input section 1, in the device control section 2, when the data is obtained as a result of pushing down~~ shows that a softkey has been pushed, functional names of enrolled key-input information, ~~which has been enrolled~~, are displayed on the LCD of the output device 3, together with an indication of a ~~and then, such~~ decision whether a certain functional name of key-input information should be executed or not ~~should be made is displayed on the LCD of the output device 3.~~

As a result of analyzing key-data, ~~which was input by the key-input section 1, in the device control section 2, when the result directs execution of key-input information, the device control section 2 executes sequentially the key-input information, which has been stored in the non-volatile memory section 4b.~~ In the case when no key-input information is executed, it is judged whether or not there is key-input information, which has been stored other than the information described above. If the other information has been stored, a functional name of the key-input information, which has been enrolled, is displayed on the LCD of the output device 3, and such a message that it is requested to decide whether or not such key-input

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information should be executed is further displayed on the LCD of the output device 3. In the case where no key-input information has been stored other than that described above, no operation is taken and it shifts to a normal condition.

As a result of analyzing key-data, ~~which has been input by the key-input section 1, in the device control section 2,~~ when it is requested to compile key-input information, the key-input information, ~~which has been~~ stored in the non-volatile memory section 4b, is developed in the key-operation storing section 4a, and ~~such a~~ message that ~~there is in process of compiling~~ key-input information is being compiled is displayed on the LCD of the output device 3.

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As mentioned above, in a communication device of the present embodiment, key-input information, which has been input by means of user's key-operation, can be stored in the key-operation storing section 4a as a series ~~of or~~ combination. Accordingly, when a user enrolls an operational procedure for certain ~~function, which is functions~~ frequently employed by ~~a the user, is enrolled,~~ such a series of functions in an operational procedure can be conducted by the user's one-touch operation. Thus, operability of a communication device in the present invention is more improved than that wherein a procedure ~~of comprising several~~ operations is input one by one, and then, the operational procedure is ~~conducted~~ executed.

Moreover, a device control section 2 of the communication device of the invention displays on the LCD of output device 3 an indication for confirming whether or not an operational procedure should be executed before such series of functions in an operational procedure selected by a user is practically executed ~~on the LCD of an output device 3~~. Hence, the user can decide whether the operational procedure should be executed or not after confirming contents of execution by the user himself (or herself), so that it is possible to prevent ~~from application~~ execution of functions, which is not intended by the user.

Furthermore, when the above-described series of functions in an operational procedure is the one for transmission and/or reception of e-mail or the one for

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accessing to a specific site on Internet, an erroneous input for an address can be prevented, so that it is possible to prevent from erroneous transmission of e-mail or erroneous accessing ~~to~~ an Internet site, which is not an intended site.
